Biogeosciences Discuss., 9, C9409–C9410, 2013
www.biogeosciences-discuss.net/9/C9409/2013/
© Author(s) 2013. This work is distributed under
the Creative Commons Attribute 3.0 License.

Biogeosciences Discussions

Interactive comment on "Influence of increasing dissolved inorganic carbon concentrations and decreasing pH on chemolithoautrophic bacteria from oxic-sulfidic interfaces" *by* K. Mammitzsch et al.

Anonymous Referee #2

Received and published: 25 April 2013

Mammitzsch et al. report on the impact of ocean acidification (both pH decline and DIC increase) on the performance of a chemolithoautotroph strain utilizing thiosulfate and nitrate. The topic is potentially of interest to a biogeosciences/microbial ecology audience, but the present version is not yet ready for publication.

The connection between these laboratory data on a single bacterial strain and the natural system should be improved. Concentration levels are far beyond those in nature (mM rather than microM). Hydrogen sulfide is likely the major substrate used in nature, while for experimental convenience thiosulfate is used here. These experimental con-

ditions complicate extrapolation of laboratory findings to natural systems. This should be clearly communicated to the reader.

The carbonate system description needs more attention: it does not follow the best practices for ocean acidification research (e.g. pH scale, methodology). pH changes during the incubations are rather large and it is sometimes not clear whether initial, mean or final concentrations/activities are reported. Terminology needs attention: hydrogen carbonate vs. bicarbonate, it is also not clear whether bicarbonate or total inorganic carbon concentrations are mentioned. The availability of substrates during incubations requires better documentation. How sure are the authors that substrate limitations (either DIC, nitrate or thiosulfate) did not affect final cell yield and its pH dependency. Clearly the experimental conditions need better documentation, this to be a lasting paper. Perhaps the authors have these detailed data; then please provide this to the reader, including growth rates.

Finally, some of the conclusions are not supported (e.g., p. 18379, l. 23).

Interactive comment on Biogeosciences Discuss., 9, 18371, 2012.